

Take out graph paper

5.2 Writing Linear Equations Given the Slope (m) and a Point (x, y)

Given $m = -3$ & $(-2, -1)$

Step 1: Find b

- 1. Substitute m and (x,y) into $y = mx + b$**
- 2. Solve for b**

Step 2: Write equation

- 1. Substitute m & b into $y=mx + b$**

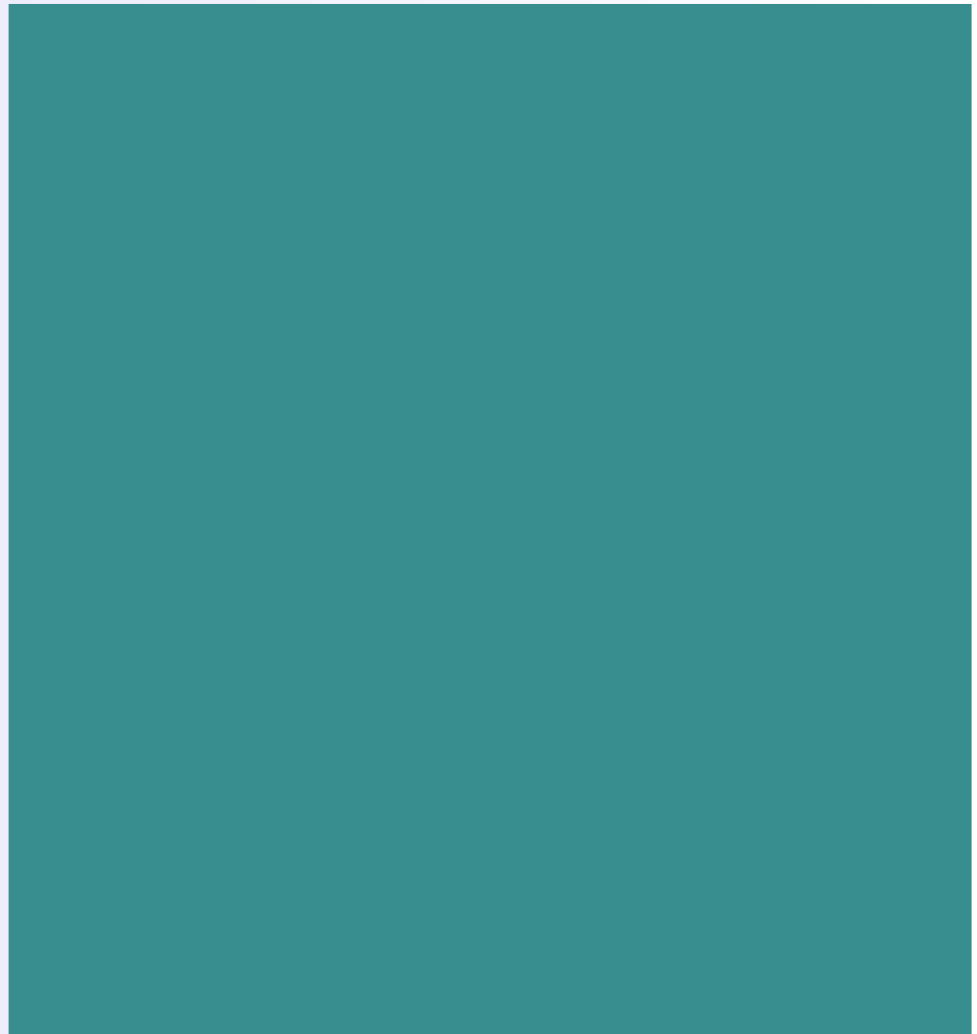
Write an equation of the line that passes through the point and has the given slope.

1. $m = \frac{1}{3}$ & $(-3, 0)$

2. $m = -5$ & $(2, -4)$

3. Graph the two points and write the equation of the line.

**Plot: $(3, 4)$ &
 $(-3, 1)$**



Questions to ponder.....Hmmmm.....

What do you know about parallel lines?

What do you think would be true of the slopes of parallel lines?

Parallel lines have the SAME slope- with the same rise and run lines they will

NEVER EVER NEVER EVER EVER NEVER intersect!

REALLY!?!



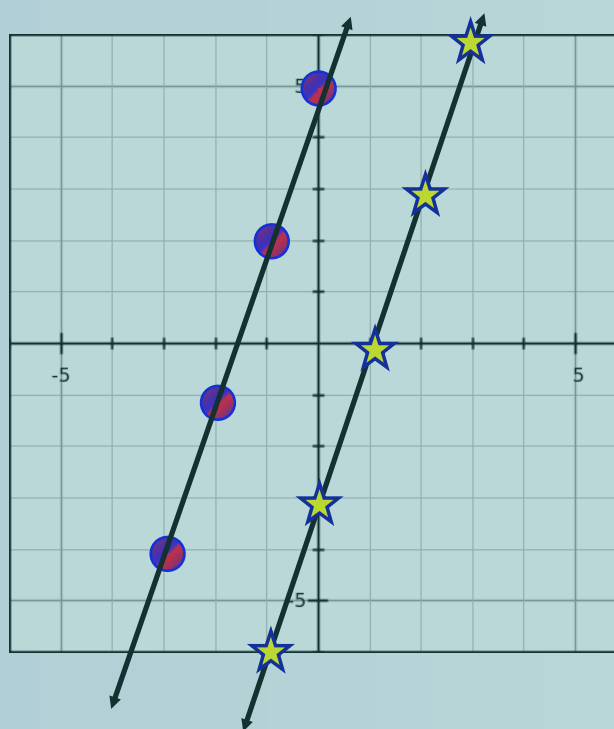
Let's try it!



**On the same graph:
Plot (2, 3) and use the slope $m = 3$ to make a line**

NOW

**Plot (-2, 1) and use the slope $m = 3$ to make a line...
See how they are parallel?**



To calculate the equation of a line whose slope is parallel to another line and given a point on the line:

- 1. Use the equation to get the parallel slope.
(That is all you need the equation for- so you can cross it out)**
- 2. Substitute the slope and the point into $y=mx+b$ and solve for b .**
- 3. Use m (from step 1) & b (from step 2) to write the equation $y = mx+b$.**

Write the equation of a line that is parallel to the given line and passes through the given slope.

4. $y = -3x - 2$ & $(3, -4)$

5. $y = x + 2$ & $(3, -2)$